Amendments to the Drawings:

Fig. 17 has been amended as suggested by the Examiner in items 2-1 and 2-2 of the Office Action dated June 10, 2005, to correctly show "NME$(11)="D2":" and to correctly show "NM(10)=9:".

Attachment: Annotated Sheet Showing Changes in Fig. 17
Replacement Sheet for Fig. 17

R E M A R K S

Reconsideration of this application, as amended, is respectfully requested.

THE DRAWINGS

Fig. 17 has been amended as suggested by the Examiner in items 2-1 and 2-2 of the Office Action dated June 10, 2005, to correctly show "NME$(11)="D2":" and to correctly show "NM(10)=9:".

However, with respect to the Examiner's objection in item 2-3, it is respectfully pointed out that the two-time definition of the intersection cell "X1" is not an error. The intersection cell "X1" is operated correctly in principle if it is registered only one time, similarly to the other element cells. To further improve accuracy, X1 can be described twice. In particular, if the accuracy of transferring the particles is degraded at the intersection cell where there are a number of connection pipes and particles frequently move, the error may also give influence to the operation waveform. Thus, calculation of the intersection cell may be described a plurality of times to improve accuracy.

Submitted herewith are a corrected sheet of formal drawing for Fig. 17 which incorporates the amendments made thereto and an annotated sheet showing the changes made thereto. No new matter has been added, and it is respectfully requested that the

amendments to the drawings be approved and entered, and that the Examiner's objection to the drawings be withdrawn.

THE CLAIMS

Claims 31, 33 and 35 have been amended to recite the features of the present invention formerly recited in (now canceled) claims 32, 34 and 36, whereby the voltages in the electric network are determined based on the determined number of particles in each of the pipes, and whereby the currents in the electric network are determined based on the determined number the particles moved through each of the element cells and intersection cells.

In addition, claims 31, 33 and 35 have been amended to clarify that the voltages and currents are determined without solving simultaneous differential equations, as supported by the disclosure in the specification at, for example, page 28, line 24 to page 29, line 8, wherein it is explained that the claimed present invention requires only the arithmetic operations of additions and subtractions. See also, the Background of the Invention at pages 1-4 with respect to the conventional technique of solving simultaneous differential equations.

No new matter has been added, and it is respectfully requested that the amendments to claims 31, 33 and 35 be approved and entered.

With respect to the rejection under 35 USC 112, second paragraph in item 5-1 of the Office Action dated June 10, 2005, it is respectfully pointed out that the "number of particles moved through the intersection cell" refers to the net particles moved through the intersection cell.

For example, in the case where the intersection cell X1 has four pipe connection ports (A, B, C, D), it may be assumed, for example, that in the converged state ninety particles flow from A and thirty particles flow from each of B, C and D.

In the process of convergence, for example, the following procedures are conceived:

m-th convergence operation	:A=88,	B=-30,	C=-30,	D=-28
m+1	:A=89,	B=-30,	C=-29,	D=-30
m+2	:A=90,	B=-30,	C=-30,	D=-30
m+3	:A=90,	B=-30,	C=-30,	D=-30

The following operations show the same values.

If the pipe port A is noted, the convergence is determined on the basis of the following errors:

m+1-th time convergence operation	: error from the previous = 1
m+2	: error from the previous = 1
m+3	: error from the previous = 0

Similarly, the pipe port B may be noted to determine the convergence, or all of the pipe ports may be noted or any one of them may be noted.

Thus, the determination of the convergence at the intersection cell is the same as the determination of the convergence at the element cell. And for this reason, the element cells and the intersection cells are both recited in the claims. As for the element cells, all of the elements do not need to be noted, but some typical elements may be noted to determine the convergence. They may contain the intersection cells. For example, three cells R1, SI, X1 may be noted.

In other words, it is respectfully submitted that the intersection cells can be handled similarly to the element cells, and it is respectfully submitted that the convergence can be determined with the element cells or the intersection cells (for the above-described reason).

Accordingly, it is respectfully submitted that the recitation of determining the number of particles in each of the pipes and the number of particles moved through each of the element cells and each of the intersection cells in each of claims 31, 33 and 35 is correct. And it is therefore respectfully requested that the rejection under 35 USC 112, second paragraph, be withdrawn.

It is respectfully submitted, moreover, that the simulation technique of the claimed present invention as recited in amended claims 31, 33 and 35, whereby the voltages and currents are determined <u>without solving simultaneous differential equations</u>,

now clearly patentably distinguishes over Alvarado et al, which requires solving a plurality of simultaneous differential equations.

As recited claims 31, 33 and 35, once the predetermined convergence condition is satisfied, the number of particles in each of the pipes is determined, and the number of particles moved through each of the element cells and each of the intersection cells is determined, and then the voltages in the electric network are determined based on the determined number of particles in each of the pipes, and the currents in the electric network are determined based on the determined number the particles moved through each of the element cells and intersection cells, <u>without solving simultaneous differential equations</u>.

Thus, according to the simulation method of the claimed present invention, an electric network is defined using interconnected cells, and the voltages and currents in the electric network are determined based on the convergence of "particles" achieved by rules set for each of the interconnected cells.

By contrast, according to Alvarado et al, the effect of each element in an electric network is represented by differential equations. And according to Alvarado et al, the voltages and

currents in the electric network are determined by solving a plurality of simultaneous differential equations.

The simulation technique of the claimed present invention, however, does not require simultaneous differential equations to be solved. By contrast, according to the claimed present invention, simple equations are repeatedly solved based on the rules for the interconnected cells, until the predetermined convergenge condition is satisfied. The electric network may thus be approximated without solving the simultaneous differential equations of Alvarado et al.

With this structure, according to the claimed present invention, it is possible to simulate a complex network, such as an LSI, which is very difficult using conventional circuit simulation techniques.

In view of the foregoing, it is yet again respectfully submitted that the present invention as recited in claims 31, 33 and 35 <u>clearly</u> patentably distinguishes over Alvarado et al under 35 USC 102 as well as under 35 USC 103.

* *

Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,

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DH:
encs.

CELL LIST			
CELL NUMBER	CONNECTION NODE NUMBER		UNIQUE INFORMATION
NME$(1)="V1":	NP(1)=1:	NM(1)=0:	DTA(1)=V1
NME$(2)="D1":	NP(2)=1:	NM(2)=2:	
NME$(3)="X1":	NP(3)=2:	NM(3)=3:	N3(3)=4: N4(3)=5
NME$(4)="X2":	NP(4)=9:	NM(4)=10:	N3(4)=11: N4(4)=12
NME$(5)="Y1":	NP(5)=0:	NM(5)=7:	N3(5)=14:
NME$(6)="RC2":	NP(6)=3:	NM(6)=6:	DTA(6)=dt/C2
NME$(7)="VC2":	NP(7)=6:	NM(7)=7:	DTA(7)=0
NME$(8)="X1":	NP(8)=2:	NM(8)=3:	N3(8)=4: N4(8)=5
NME$(9)="RC3":	NP(9)=5:	NM(9)=8:	DTA(9)=dt/C3
NME$(10)="VC3":	NP(10)=8	NM(~~X~~)=9: 10	DTA(10)=0
NME$(11)="~~X2~~": D2	NP(11)=13:	NM(11)=10:	
NME$(12)="S1":	NP(12)=11:	NM(12)=15:	N3(12)=39: N4(12)=15: DTA(12)=1
NME$(13)="X3":	NP(13)=13:	NM(13)=14:	N3(13)=15: N4(13)=16
NME$(14)="P1":	NP(14)=39:	NM(14)=15:	DTA(14)=50: DTA2(14)=0: DTA3(14)=223
NME$(15)="X4":	NP(15)=4:	NM(15)=17:	N3(15)=18: N4(15)=19
NME$(16)="X5":	NP(16)=12:	NM(16)=20:	N3(16)=21: N4(16)=22
NME$(17)="RTPI":	NP(17)=18:	NM(17)=21:	DTA(17)=L1 * (1-ketu*ketu)/dt
NME$(18)="RTMI":	NP(18)=23:	NM(18)=26:	DTA(18)=(L1 * L2-M * M)/(M * dt)
NME$(19)="ITPI":	NP(19)=20:	NM(19)=17:	DTA(19)=0
NME$(20)="X6":	NP(20)=23:	NM(20)=24:	N3(20)=25: N4(20)=30
NME$(21)="X7":	NP(21)=26:	NM(21)=27:	N3(21)=28: N4(21)=29
NME$(22)="RTSI":	NP(22)=24:	NM(22)=27:	DTA(22)=L2 * (1-ketu * ketu)/dt
NME$(23)="RTMI"	NP(23)=19:	NM(23)=22:	DTA(23)=(L1 * L2-M * M)/(M * dt)
NME$(24)="ITSI":	NP(24)=28:	NM(24)=25:	DTA(24)=0
NME$(25)="Y2":	NP(25)=30:	NM(25)=31:	N3(25)=32
NME$(26)="R1":	NP(26)=32:	NM(26)=36:	DTA(26)=R1
NME$(27)="R2":	NP(27)=31:	NM(27)=33:	DTA(27)=R2
NME$(28)="X8":	NP(28)=35:	NM(28)=36:	N3(28)=37: N4(28)=16
NME$(29)="RC5":	NP(29)=33:	NM(29)=34:	DTA(29)=dt/C5
NME$(30)="VC5":	NP(30)=34:	NM(30)=35:	DTA(30)=0
NME$(31)="RC4":	NP(31)=29:	NM(31)=38:	DTA(31)=dt/C4
NME$(32)="VC4":	NP(32)=38:	NM(32)=37:	DTA(32)=0
new_i=32			

FIG. 17